

ABSTRACT OF THE DISCLOSURE

A nozzle is provided for an injection molding apparatus. The injection molding apparatus includes a mold block. The mold block defines at least one mold cavity that has a gate. The nozzle includes a nozzle body, a valve pin, an actuator, a first heating element and a second heating element.

- 5 The nozzle body defines a nozzle body melt channel that is in fluid communication with and downstream from a melt source and that is in fluid communication with and upstream from the gate. The valve pin includes an upstream portion that defines a valve pin melt channel, wherein the valve pin melt channel has an inlet and at least one outlet. The inlet and the at least
- 10 one outlet are in fluid communication with the nozzle body melt channel. The valve pin further includes a tip piece connected to the upstream portion. The valve pin is movable in the nozzle body melt channel for controlling the melt flow through the gate. The actuator is operatively connected to the valve pin to move the valve pin between the open and closed positions. The first
- 15 heating element is thermally connected to the upstream portion of the valve pin. The second heating element is thermally connected to the nozzle body.